

addition, the second nuclear whorl in *M. bermudezi* is larger than the third whorl, a character not exhibited by *M. halligani*. Sculpture characters differ slightly. In *bermudezi* the middle spiral line of nodules is about equal in size and height to the two marginal rows; in *halligani*, the middle row is more elevated and tends somewhat to produce a peripheral angulation. This latter species has the whorls more convex and more sharply differentiated. Apertural characters appear to be similar. The only other species known to us are those described by Iredale from Christmas Island, south of Java, as *Pickworthia andrewsi*, *P. kirkpatricki* and *Reynellona natalis*. All of these latter species are *Mecoliotia* according to Thiele. They differ from our form by possessing entirely different sculpture, and not having the nuclear whorls particularly differentiated from the later portion of the shells.

STUDIES OF AFRICAN LAND AND FRESH-WATER MOLLUSKS, X.—GULELLA PUMILIO (GOULD) AND TWO SPECIES CONFUSED WITH IT

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While arranging the African Streptaxidae in the Museum of Comparative Zoölogy, two different species were found labelled "*Pupa pumilio* Gould," one being a *Gulella*, the other a *Ptychotrema*. Gould's description is too indefinite to decide which he had before him, and he might even have had both. Fortunately, the types of *Pupa pumilio* are at the New York State Museum, in Albany, where the senior author was privileged to study them, through the kindness of Dr. Chas. C. Adams, Director of the Museum.

GULELLA PUMILIO (Gould). Plate 6, Figs. 1 and 2.

Pupa pumilio Gould, 1843, Proc. Boston Soc. Nat. Hist., I, p. 158 ("Africa"; part of a lot collected by Dr. George A. Perkins, which on p. 153 is stated to have come from Cape Palmas, Liberia). Pfeiffer, 1853, Mon. Helic. Viv., III, p. 541 (description of a specimen in Cuming's collection). Küster, 1854 (?), Syst. Conch.-Cab., I, Abt. 15, p. 160, Pl. XIX, figs. 13-15 (specimen from Cuming's collection).

Pupa [*Ennea*] *pumilio* Gould, 1862, Otia Conchol., p. 193. E. v. Martens, 1860, in Albers, Die Heliceen, 2nd Edition, p. 302.

Ennea pumilio Pfeiffer, 1855, Malak. Blätter, II, p. 61; 1859, Mon. Helic. Viv., IV, p. 338; 1868, *Op. cit.*, V, p. 452; 1876, *Op. cit.*, VII, p. 500.

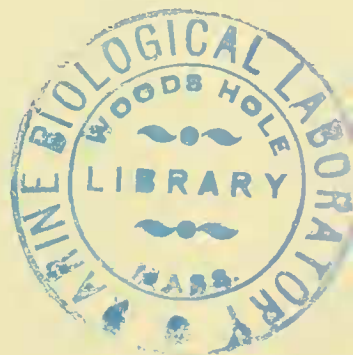
Ennea (Uniplicaria) pumilio Pfeiffer, 1878, Nomencl. Helic. Viv., p. 18. Tryon, 1885, Man. of Conch., (2) I, p. 90, Pl. XVIII, fig. 49 (copy of Kuster's figure).

Pupa (Oracula) pumilis "Gould" H. and A. Adams, 1858, Genera Rec. Moll., II, p. 170.

In the Gould collection, now at the New York State Museum *Pupa pumilio* is represented by three cotypes, from "Liberia," all belonging to the same species of *Gulella*. They are divided into two lots bearing the Museum Catalogue numbers 216 (Gould's original No. A1265) and 217 (Gould's original No. 1257). Through the courtesy of Dr. Chas. C. Adams, we are enabled to figure one of these cotypes. Three specimens at the Museum of Comparative Zoölogy (No. 8664), part of the E. R. Mayo collection (received from the Boston Society of Natural History), and named "*Pupa pumilio* Gould," agree with Gould's types. Dr. H. A. Pilsbry informs us that similar specimens are under the name "*Pupa pumilio*" at the Academy of Natural Sciences in Philadelphia, from two sources, the Bland collection and the Jeanes collection. Dr. E. Degner writes us that the true *Gulella pumilio* is likewise represented in the Hamburg Museum. It seems probable that all these specimens, as well as those in other collections, were part of the original lot distributed by Gould, and may therefore be paratypes. So far as we could ascertain, *Pupa pumilio* was never collected again, either at Cape Palmas or elsewhere.

As pointed out to us by Dr. Pilsbry, Gould's measurements, both in the original description and in the Otia, are obviously erroneous: "Long. $\frac{13}{20}$; lat. $\frac{7}{10}$ poll." [= 16.5 mm. long and 17.5 mm. wide]. The three cotypes in Albany measure: Length, (a) 11.5 mm.; (b) 12.0 mm.; and (c) 12.0 mm. Greatest width, (a) 5.5 mm.; (b) 5.5 mm.; and (c) 5.5 mm. The three specimens at the Mus. Comp. Zoöl. measure: Length, (a) 11.0 mm.; (b) 11.0 mm.; and (c) 11.7 mm. Greatest width, (a), (b), and (c) 5.0 mm. Pfeiffer's specimen (1853) measured: Length, 13.0 mm. Diameter, 5.0 mm. Aperture, 5.0 by 4.0 mm.

While Gould's description is rather ambiguous, there can be no doubt about Pfeiffer's description being based upon the *Gulella*





1, 2, *Gulella pumilio* (Gld.), cotype, p. 93.

3, 4, *Ptychotrema degneri* B. & C., holotype, p. 96.

5, 6, 7, *Gulella pilsbryi* B. & C., paratype and holotype, p. 95.

Figures 3, 5, 6 $\times 10$, the rest $\times 5$.

represented by Gould's cotypes. The same is true of Küster's description and figures.

GULELLA PILSBRYI, new species. Plate 6, Figs. 5, 6, and 7.

Shell cylindric-oblong, slightly wider above the middle, the summit obtusely conic. Color milk-white, somewhat shiny. Whorls 8 to 9, very slightly convex. Sutures slightly impressed, not crenulate, ascending somewhat to the aperture. Aperture roundly triangular, nearly as wide as high. Peristome slightly thickened, expanded and reflexed basally. Columella short, situated well within the aperture, supporting two low, equal plaits or lamellae, the lower one about midway on the columella, the upper one close to the extreme upper portion. Basal area and palatal lip toothless. Parietal wall supporting a strong, deeply entering and twisted lamella, situated almost exactly in the mid region, but far below the upper edge of the parietal callus; close to the upper edge of the outer lip, and shallowly separated from it, the parietal callus is thickened into a low tubercle. The columellar and parietal lamellae are carried back deep on the axis of the shell, to as far as three or more whorls. Umbilical region minutely, rimately perforate. Body-whorl even behind the lip, not contracted, without pit or furrow. Sculpture: first $1\frac{1}{4}$ whorls appearing smooth under the hand-lens, but with microscopic spiral striae; remaining early whorls finely costulate with oblique axial ridges, strongest at the suture; last two whorls with this sculpture present but very much fainter and somewhat more irregular; under a 12 power lens there appears to be no other sculpture.

Height	Greatest Width	Aperture Height	Aperture Width	
10.0 mm.	4.5 mm.	3.0 mm.	2.6 mm.	9 whorls; holotype.
8.9	4.1	2.3	2.2	8 " paratype.
9.4	4.0	2.3	2.1	$8\frac{1}{2}$ " "
8.7	4.0	2.6	2.0	$8\frac{1}{4}$ " "

Holotype: Ac. Nat. Sci. Phila. No. 23891, Liberia (from the John Ford collection). Paratypes at the Ac. Nat. Sci. Phila. and Mus. Comp. Zoöl., Cambridge, Mass., No. 106384, with the same data.

Closely related to *G. pumilio* (Gould), with which it appears to have been confused. It differs in shape, in the lack of crenulation below the suture, and in the presence of two (instead of one) immersed lamellae on the columella.